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The Tech

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Tuesday, December 10, 2013

WEATHER, p. 2

TUE: 36°F | 21°F
Snow

WED: 31°F | 17°F
Partly cloudy

THU: 23°F | 14°F
Partly cloudy

HO YIN AU—THE TECH

Bursts of confetti over the heads of the large audience marked the conclusion of the final presentations for 2.009, Product Engineering Process.

REPORTER'S NOTEBOOK

Final presentations by students in 2.009

Course 2 capstone class concludes with presentations to large crowd

By William Navarre
STAFF REPORTER

On Monday, Dec. 9, students in 2.009: Product Engineering Processes, presented their final projects in Kresge Auditorium. The students worked together in teams of sixteen to eighteen throughout the semester to develop products and build prototypes related to the wellness-oriented theme dubbed "Be Well." Each team was given a $6,500 budget to design their product and build prototypes. The event, a well-organized production complete with live music, began promptly at 7:30 p.m. with a musical performance by organist Epp Sonin.

Kresge was filled with spectators. Course 2 junior Ben Z. Niewood '15 said he came to the event "out of general interest. I really like the idea [of the 2.009 projects]. I'm excited to do it next year. It's a good way to learn about the process [of designing a product for market]."

Each of the color-coded teams presented their prototypes and explained their product in eight minutes, which was followed by five minutes for questions.

The Orange Team presented "Mira: The future of motorcycle navigation." Mira allows motorcycle rid-

2.009, Page 13

Sipser appointed Acting Dean of the School of Science

Effective Dec. 16, 2013, Michael Sipser, head of the Department of Mathematics, will become the interim dean of the School of Science according to an MIT News Office press release.

His interim appointment comes several weeks after Marc A. Kastner, his predecessor, was nominated to lead the Department of Energy's Office of Science by President Barack Obama.

According to Sipser, "The School is in great shape, and I aim to keep it that way." His responsibilities will include working with department heads and directors, advising the senior administration officials like the president and provost, and setting priorities for allocation resources within the School of Science.

According to the MIT News Office, a search committee will be formed to find the new permanent dean. In an email to *The Tech*, Sipser said he intends to be a candidate for the position, "along with others who are highly qualified for the position." He expresses interest in continuing to engage with MIT students, whether through administration or teaching.

Sipser joined the MIT faculty in

Sipser, Page 13

Four MIT seniors are among Marshall Scholarship winners

Each will have opportunity to study at the U.K. university of their choice after MIT graduation

By Tushar Kamath
ASSOCIATE NEWS EDITOR

Four MIT seniors recently received the prestigious Marshall Scholarship. According to the MIT News Office press release, these undergraduates — Kirin J. Sinha, Catherine E. Koch, Colleen Loynachan, and Grace C. Young — will join the 30 other U.S. winners in pursuing a graduate degree for two years at the U.K. institution of their choice.

Kirin Sinha

Kirin Sinha, an MIT senior currently pursuing a degree in Theoretical Mathematics and Electrical Engineering and Computer Science, plans to study both mathematics and computer science at Cambridge University. Kirin has been working with Professor John W.M. Bush in applied math, studying the wave behavior of water droplets.

"I wanted a different experience in graduate school to broaden my experience," said Sinha about her motivation on pursuing the scholarship. "Cambridge University is a school steeped in the tradition of mathematics dating back hundreds of years, and the Marshall Scholarship enables me to study there."

Marshall, Page 14

IN SHORT

Course evaluations close Monday, Dec. 16 at 9 a.m. Visit *http://web.mit.edu/subjectevaluation* to fill out the forms. The set of questions this year is new, and the quantitative portion is designed to take 3–5 minutes.

The Independent Activities Period runs from Monday, Jan. 6 to Friday, Jan. 31, 2014. Students can use WebSIS preregistration to modify their selection of subjects until Jan. 3. Non-credit activities are also available.

This is *The Tech*'s last issue of the semester. We will publish every Wednesday during IAP, on Jan. 8, 15, 22, and 29. We will resume our regular twice-weekly publication schedule on Tuesday, Feb. 4, 2014.

Send news information and tips to *news@tech.mit.edu*.

MBTA expands T hours

The MBTA announced last week a one-year pilot late night service operating on Saturdays and Sundays beginning this spring. Expanded hours will not run on Friday nights. According to the *Boston Globe*, the new service will run until 3:00 A.M. with the last train leaving the city at 2:30 a.m. and will include the all train lines, the Silver Line, and 15 bus routes: 1, 15, 22, 23, 28, 32, 39, 57, 66, 71, 73, 77, 111, 116, and 117. Train fares will remain the same for late night hours as other times: $2 for a subway and $1.50 for a bus.

The pilot late night service comes in response to concerns from college students and the technology sector in Boston over the lack of public transportation late at night.

The late night program became a focal point of the Boston mayoral race, in which Major-elect Martin J. Walsh promised to implement late night T service if elected. Debates raged over the course of the summer to find sources of funding for the service. According to *The Boston Globe*, proponents believed that expanded hours would help further establish Boston as a tech center while, opponents warned that the state could not afford to expand hours. *The Boston Globe* noted in an editorial published on Saturday in support of the changes that the current 1:00 a.m. end of service leaves late night restaurant workers with no way to get home.

Governor Deval Patrick has pledged $20 million to fund the one-year pilot. Funding for future service, however, remains uncertain. The state is hoping to raise $2 to 5 million from private companies to help fund the late night service, but has yet to secure any formal commitments.

The city has previously implemented light night service. The Night Owl bus service, which ran from 1:00 to 2:30 a.m. on Saturday and Sunday nights, operated from 2001 to 2005. The service was cancelled due to insufficient demand. According to *The Boston Globe*, the state is now hopeful that the 5,200 people entering the T at 1:00 a.m. will be sufficient to create a sustainable late night service. The previous service had only included bus service, while the new service will run subways, which run more frequently

MBTA, Page 15

MELISSA RENÉE SCHUMACHER—THE TECH

Kara N. Presbrey '16 models a dress made from leaves, paper, and wire at the MIT Trashion Show last Friday night.

POOR GRAD STUDENT TRAVELS

Somewhere on the Search for Meaning: This is not where I wanted to go. **FUN, p. 6**

RELIGIOUS FREEDOM AT MIT

On a recent defacing of a Falun Gong poster. **OPINION, p. 4**

MEGAN QUINN AT MIT VC

Innovation Nation on Kleiner Perkins' Megan Quinn. **CAMPUS LIFE, p. 9**

MIT-THEMED RECYLCED ART

Creating MIT-themed art from items found at Choose-to-Reuse. **ARTS, p. 11**

SELECTING AN RA FOR AN FSILG

The selection process for FSILG RAs should be more flexible. **LETTERS, p. 4**

SECTIONS

World & Nation . . .2
Opinion 4
Fun Pages 5
Campus Life 9
Arts 11
Sports 20

Sysco to buy US foods for $3.5 billion

Sysco agreed on Monday to buy U.S. Foods for about $3.5 billion in stock and cash, uniting two of the biggest food distributors in the country.

Under the terms of the deal, Sysco will pay $3 billion in stock and $500 million in cash. The transaction will give U.S. Foods' current owners, the investment firms Clayton, Dubilier & Rice and Kohlberg Kravis Roberts, a stake of roughly 13 percent in the combined company.

Including the assumption of U.S. Foods' debt, the transaction is valued at $8.2 billion.

By buying one of its largest rivals, Sysco will solidify its position as the reigning giant of food distribution. The company, whose trucks move millions of pounds of frozen food and kitchen supplies around the country, expects its annual revenue to grow by 46 percent, to $65 billion.

The deal will also give U.S. Foods' owners a path to exit their investment. Clayton Dubilier and KKR bought the company from the Dutch grocery store company Royal Ahold in 2007 for about $7.1 billion, which included debt.

—Michael J. De La Merced, The New York Times

North Korea confirms purging of leader's uncle from his posts

SEOUL, South Korea — North Korea on Monday confirmed that Jang Song Thaek, the once-powerful uncle of the country's leader, Kim Jong Un, had been stripped of his many positions and expelled from the ruling Workers' Party in the biggest purge since Kim assumed control of the nation two years ago.

Kim, 30, presided over an extended meeting of the Political Bureau of the Party Central Committee on Sunday where a decision was adopted to purge Jang, 67, and his "group" for counterrevolutionary acts like "attempting to undermine the unitary leadership of the party."

By singling out Jang and those associated with him, North Korea indicated that it had been removing a vast network of protégés that, according to South Korean intelligence officials, Jang had helped install in the party and military.

—Choe Sang-Hun, The New York Times

Cameras proposed inside cabs of trains

NEW YORK — A week after a Metro-North train derailed in the Bronx, killing four people and injuring scores of others, two U.S. senators on Sunday called for Metro-North and other train systems across the country to install onboard video cameras to monitor track conditions and train operators — a system the senators said might have prevented last week's accident.

Sens. Charles E. Schumer of New York and Richard Blumenthal of Connecticut, who have become vocal and frequent critics of Metro-North, said the National Transportation Safety Board recommended that the cameras be adopted for all railways after a 2008 fatal collision in California, but that the Federal Railroad Administration had not ordered railway authorities to do so. The board's recommendation came in a 2010 report on the California crash.

"This isn't the first time that fatigue has been linked to a serious accident," Schumer said at a news conference at Grand Central Terminal in Manhattan. "Better late than never; should've done it five years ago, but they should do it now."

Schumer acknowledged that it was unclear whether cameras would have prevented the derailment, but he said the cameras could alert train operators to track problems and deter drivers from texting or nodding off during trips. Amtrak locomotives already carry the exterior cameras, he said. Some city bus systems and commuter railroads, including the California system involved in the 2008 collision, use driver-monitoring cameras.

—Vivian Yee, The New York Times

House and Senate reach compromise on Pentagon bill

By Jonathan Weisman and Jennifer Steinhauer
THE NEW YORK TIMES

WASHINGTON — House and Senate negotiators reached a final agreement Monday on a Pentagon policy bill that would strengthen protections for military victims of sexual assault and keep the prison facility at Guantánamo Bay open over President Barack Obama's strenuous objections, as Congress rushed to wrap up work in its last full week of the year.

The way the Pentagon deal was struck reflected the dysfunction that has been characteristic of the current Congress. Negotiators from the House and Senate armed services committees found common ground on the sprawling measure even though a Senate version has yet to pass, and some Senate Republicans were furious that they had been bypassed once again.

But in the unusual first session of the 113th Congress, precedent has rarely held, and in a legislative year likely to go down in history as the least productive ever, Monday's accord on defense policy was something of a victory for Congress.

It was a loss for champions of a more sweeping response to sexual assault in the military, a group led by Sen. Kirsten E. Gillibrand, D-N.Y. Her effort to take sexual assault cases out of the military chain of command was rebuffed and she intends to try to advance her bill again next year.

The House passed its annual defense policy bill in the summer, but the Senate's version has been pending for weeks, bogged down in a dispute over the number of Republican amendments that would be allowed to come to a vote.

As Republican and Democratic leaders battled over procedure, the House and Senate armed services committees negotiated behind the scenes on a compromise bill that is likely to pass the House this week and then be taken up by the Senate next week.

The measure is the first change to laws governing sexual assault in the military in years and stems from the furor that has erupted in recent years over the rising number of sexual assaults in the military. There were 3,553 sexual assault complaints reported in the first three quarters of this fiscal year, a nearly 50 percent increase over the same period a year earlier.

The problem has drawn particular scrutiny in this Congress by the seven women on the Senate Armed Services Committee.

While the compromise measure offers modest reforms, the more contentious changes championed by Gillibrand were rejected by the Senate committee, seriously reducing the chances of her proposals being included in the final measure.

Sen. Carl Levin, D-Mich., who chairs the Senate Armed Services Committee, said the bill would provide a special victims counsel for survivors of sexual assault and makes retaliation for reporting assault a crime. Service members court-martialed for sexual assault would no longer be able to stay in the military if found guilty and those accused would be moved from units that they share with their accusers.

Israel agrees to allow building materials into Gaza

By Jodi Rudoren
THE NEW YORK TIMES

JERUSALEM — Under pressure from the United Nations amid a mounting economic and humanitarian crisis in the Gaza Strip, Israel has agreed to restart the transfer of construction materials to Gaza on Tuesday after an eight-week hiatus.

But the building supplies will be allowed in only for U.N. projects, which employ a fraction of the thousands of construction workers who have been idled, and negotiations to resolve Gaza's fuel shortage have not yielded significant results.

"We are increasingly concerned about the situation in Gaza deteriorating," Robert H. Serry, the U.N. special envoy for the Middle East peace process, said in an interview. Serry, who worked with Israeli officials to resume the import of construction materials, acknowledged that "it is only one part of the constraints we are facing in Gaza," and added, "Without also addressing the political underlying issues, everything we're doing in Gaza is tenuous."

Gaza, home to 1.7 million Palestinians and controlled since 2007 by the militant Islamic Hamas movement, has been struggling since the summer to cope with the current Egyptian government's closing of hundreds of smuggling tunnels through which the strip received steel, gravel and cheap diesel fuel, as well as consumer products.

The situation worsened Nov. 1, when Hamas shut down Gaza's lone power plant because of a shortage of electricity and cheap fuel from Egypt, stretching blackouts up to 18 hours a day and causing raw sewage to flood some streets because pumping stations could not operate.

Late last month, Turkey donated about $850,000 in fuel, which is being used for 100 critical spots, including pumping stations, schools and hospitals. But Palestinian and U.N. officials said that the fuel was not enough to address the broader energy problems plaguing daily life, and that in any case it would run out by February.

Serry's office estimated that Gaza needed an infusion of $6 million to $8 million a month to address the fuel shortage. Qatar has expressed willingness to donate the money, but political friction between Gaza and the Palestinian Authority — which is dominated by Hamas' political rival, Fatah — over taxes and other matters concerning the fuel's importation have stymied the deal. On Sunday, despite the cold and rain, the Hamas power authority asked residents not to turn on their heaters to conserve electricity.

WEATHER

Arctic front to bring temperature plunge

By Ray Hua Wu

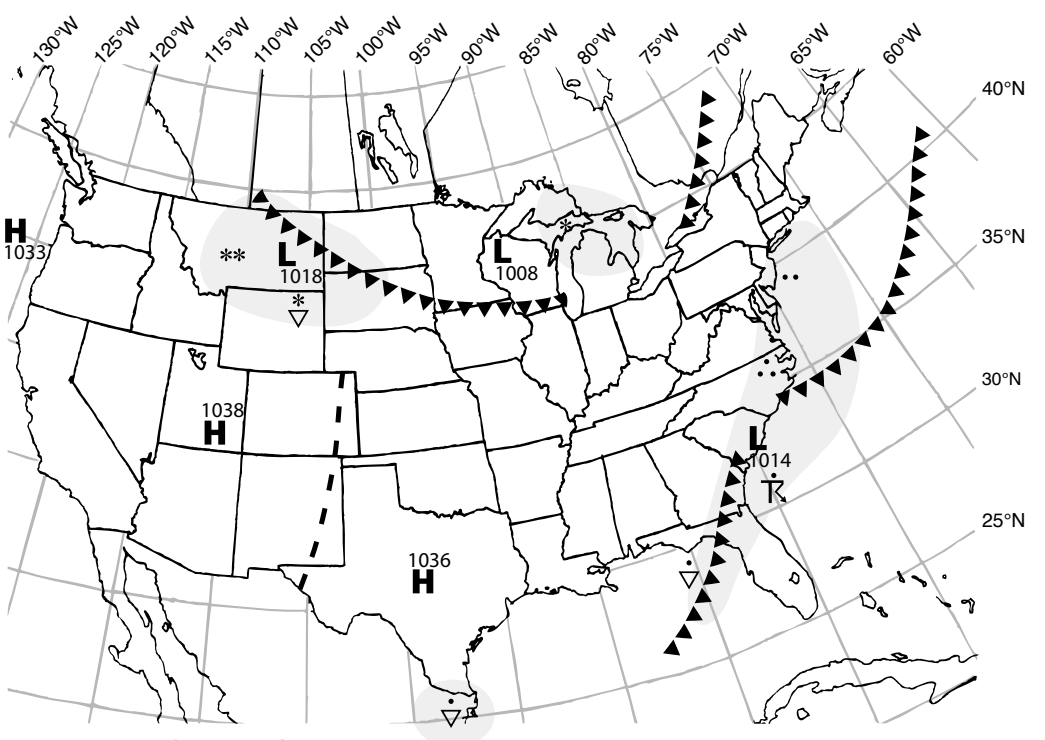
Yesterday, we at Cambridge witnessed our first lasting snow of the winter, more than one month later than the time of our first lasting snow last year. Temperatures over the last few days frequently oscillated above and below freezing, as is typical in Bostonian December.

This will soon change, however, as an Arctic Front is forecast to move through Boston tomorrow night, lowering highs to below freezing and pushing lows into the teens. The later part of the week is expected to be dry and frigid.

As hurricane season ended, a time for a new, different set of named storms came. Over the past few days, Winter Storm Dion has brought to much of the Eastern U.S. significant amounts of snow and many airport delays. Continued snowfall in the Mid-Atlantic is still expected today.

Extended Forecast

Today: Cloudy with possible late morning and afternoon snow, and windy evening. High around 36°F (2°C). Winds East at 15–25 mph.
Tonight: Clear. Low around 22°F (-5°C). Winds southwest at 10 to 15 mph.
Tomorrow: Partly cloudy, dry, and windy. High around 31°F (0°C). Winds Southwest at 15–25 mph.
Thursday: Partly cloudy and cold. High around 23°F (-5°C).
Friday: Partly cloudy and cold. High around 29°F (-2°C).



Situation for Noon Eastern Time, Tuesday, December 8, 2013

Weather Systems	Weather Fronts	Precipitation Symbols			Other Symbols
			Snow	Rain	
H High Pressure	Trough	Showers	*	•	Fog
L Low Pressure	Warm Front	Light	*	•	Thunderstorm
§ Hurricane	Cold Front	Moderate	**	••	Haze
	Stationary Front	Heavy	***	•••	

Compiled by MIT Meteorology Staff and *The Tech*

Thai premier calls for elections as opposition quits

By Thomas Fuller
THE NEW YORK TIMES

BANGKOK — Facing volatile street protests and the mass resignation from Parliament of the main opposition party, Thailand's prime minister on Monday called for fresh elections, the latest in a series of attempts to defuse anger against her political party and her powerful family. "Let the people decide the direction of the country and who the governing majority will be," the prime minister, Yingluck Shinawatra, said in a televised statement Monday morning.

The news came as thousands of protesters, who have vowed to overthrow the government and rid the country of the influence of Yingluck's family, marched toward the prime minister's office.

The call for elections, which were not due until 2015, did not satisfy many of the protest leaders, who reacted with scorn minutes after the announcement. "This is not our objective," Anchalee Paireerak, a protest leader, said of the elections. "We will continue marching."

Protests in Bangkok have left five people dead and hundreds injured over the past two weeks. Anchalee and other protest leaders have called for a system that would replace the country's electoral democracy with a vaguely defined "people's council," a plan that civic leaders and scholars have widely derided as idealistic, unworkable and retrograde.

The opposition in Thailand has been deeply frustrated by its inability to win elections against the powerful political machine backed by the billionaire tycoon Thaksin Shinawatra, a former prime minister who now lives in exile. Yingluck is Thaksin's sister.

On Sunday, the Democrat Party, Thailand's oldest and the main force behind the country's political opposition, announced that its members would resign from Parliament and join anti-government street demonstrations. "We cannot beat them," said Theptai Seanapong, one of the members of Parliament who resigned on Sunday. "It doesn't matter if we raise our hands and feet in parliamentary votes, we will never win."

Sathit Wongnongtoey, one of the protest leaders and a former member of Parliament for the Democrat Party, said Monday that he feared there would be "cheating" in the election if the government carried on as caretakers, as the constitution stipulates.

"And they will return to power," Sathit said. "We cannot allow that to happen."

The mistrust of electoral politics has echoes across the region — in Malaysia, where the governing party has heavily gerrymandered the electoral map, and in Cambodia, where the authoritarian prime minister, Hun Sen, has used the machinery of the state and military to bolster his power. The Cambodian opposition continues to boycott Parliament over allegations of widespread electoral fraud in July elections.

One major difference in Thailand, however, is that there is little dispute that Thaksin's party has won the hearts of the majority of voters. By tailoring its policies to voters in the provinces, especially in northern Thailand, scholars say, the governing Pheu Thai Party has convincingly won every election since 2001.

Philippines and Muslim rebels move closer to final peace deal

By Floyd Whaley
THE NEW YORK TIMES

MANILA, Philippines — The Philippines has moved a step closer to a landmark peace deal with the country's largest Muslim insurgent group, but significant obstacles to an end to violence remain.

The two sides have reached agreement on sharing power in Muslim-dominated parts of the southern Philippines and hope to reach a final deal by January, according to a statement released Sunday.

"We are in the homestretch," said Amado M. Mendoza Jr., a political science professor at the University of the Philippines who is monitoring the negotiations.

The deal seeks to bring peace to the southern Philippines, which has been racked by violence for more than a century. Many Muslims in the region believe that the Christian-dominated government in the north has oppressed them and taken their resources.

Muslim separatist groups, fueled by such sentiments and by grinding poverty in the country's south, have been fighting for an independent state for decades. The conflict has killed tens of thousands of people and has caused the resource-rich southern Philippine island of Mindanao to lag behind the rest of the country in economic and social development.

In October 2012, the Philippine government signed a framework peace agreement with the Moro Islamic Liberation Front, the country's largest Muslim insurgent group. That was followed in July by a wealth-sharing deal in which the two parties agreed that 75 percent of the tax revenue from metallic minerals mined in the region would stay in Mindanao. In addition, 50 percent of the taxes collected from fossil fuels developed in the region would remain.

The details on the power-sharing agreement reached Sunday were not released, but government officials had indicated that the national government would retain authority over national defense, foreign policy and monetary issues. The newly formed autonomous region, to be called Bangsamoro, is expected to have broad local powers.

The announcement noted that the two sides were still negotiating an agreement on what was termed "Bangsamoro waters." This is probably a reference to the control of coastal resources in the autonomous region, Mendoza said. The Philippine Department of Energy has identified untapped oil and gas reserves in the Sulu Sea, along the coast of the Bangsamoro area.

Another aspect of the agreement to be negotiated involves what the two parties call the "normalization" of armed fighters in the insurgent group. This would involve incorporating the fighters into the Philippine military, the local police or other government security forces.

Israel, Jordan, and Palestinians sign water project deal

By Isabel Kershner
THE NEW YORK TIMES

JERUSALEM — In a rare display of regional cooperation, representatives of Israel, Jordan and the Palestinian Authority signed an agreement Monday to build a Red Sea-Dead Sea water project that is meant to benefit all three parties.

The project addresses two problems: the acute shortage of clean fresh water in the region, especially in Jordan, and the rapid contraction of the Dead Sea. A new desalination plant is to be built in Aqaba, Jordan, to convert salt water from the Red Sea into fresh water for use in southern Israel and southern Jordan — each would get 8 billion to 13 billion gallons a year. The process produces about the same amount of brine as a waste product; the brine would be piped more than 100 miles to help replenish the already very saline Dead Sea.

Under the agreement, Israel will also provide Amman, the Jordanian capital, with 8 billion to 13 billion gallons of fresh water from the Sea of Galilee in northern Israel, and the Palestinians expect to be able to buy up to 8 billion gallons of additional fresh water from Israel at preferential prices.

The agreement was signed at the Washington headquarters of the World Bank, a sponsor of the project.

The water level in the Dead Sea, an ancient salt lake whose shores are the lowest dry places on Earth, has been dropping by more than 3 feet a year, mainly because most of the water in the Jordan River, its main feeder, has been diverted by Israel, Jordan or Syria for domestic use and irrigation; very little now reaches the lake. Potash industries on either side of the lake have also had a detrimental impact. About 25 miles of the Dead Sea's shoreline lie in the Israeli-occupied West Bank and are claimed by the Palestinians as part of a future state.

Israeli officials said that proposals would soon be solicited internationally from private companies to build and operate the desalination plant in Aqaba, which is meant to operate on a commercial basis, selling the potable water to Jordan and Israel. The brine pipeline to the Dead Sea, estimated to cost at least $240 million, would be financed by donor countries and organizations, with the World Bank providing a bridge loan.

The brine pipeline will run through Jordanian territory, because the planning process in Jordan is quicker and less liable to be slowed by the objections of environmentalists and other opponents, according to Israeli officials. They said that the added brine's effects on the Dead Sea would be carefully monitored.

The project has been discussed and studied in various forms for 20 years.

Iraq forces clash with gunmen in Syria border area

BAGHDAD — Iraqi forces battled gunmen trying to infiltrate the country from neighboring Syria on Monday, while attacks in Baghdad and north of the capital killed more than 20 people, officials said.

Twenty sport utility vehicles and more than two dozen motorcycles carrying gunmen tried to enter Iraq in Anbar province, but Iraqi border forces turned them back after a two-hour clash, the Ministry of Interior said in a statement. It gave no details about casualties or the identities of the armed men.

Iraq has been seized by violence that has taken on sectarian overtones, and many fear that the civil war in neighboring Syria will only intensify those divisions. Some militant Sunnis linked to al-Qaida have flocked to the rebel cause in Syria, fighting President Bashar Assad's forces and the Shiites backing his government.

Major bombings in Iraq have become an almost daily occurrence, and on Monday three improvised explosive devices detonated in Baghdad, killing nine people, three of them members of the Sunni Awakening movement, according to medical and security officials.

—Duraid Adnan, The New York Times

Chrysler to recall 5,600 vehicles; NHTSA investigates Hyundai

Chrysler will recall about 4,200 cars and pickups in the United States and 1,400 in Canada because the 8-speed automatic transmission could fail, while in a separate action the National Highway Traffic Safety Administration is investigating whether a Hyundai recall earlier this year should have covered more vehicles.

The Chrysler recall affects some 2013 Chrysler 300, Dodge Charger and Ram 1500 vehicles equipped with a V6 engine, either all-wheel drive or 4-wheel drive and the 8-speed automatic transmission, according to a report the automaker filed with the safety agency Thursday.

The 8-speed transmission's output shaft may fracture, resulting in a loss of power, the automaker said, adding that it learned of the problem because of warranty claims on the transmission made by its manufacturer, ZF Group. Chrysler said it would inspect and test the transmission and if necessary "replace their transmission assemblies."

The automaker said it was not aware of any accidents or injuries related to the problem.

—Christopher Jensen, The New York Times

Eastern states press Midwest to improve air

WASHINGTON — In a battle that pits the East Coast against the Midwest over the winds that carry dirty air from coal plants, the governors of eight Northeastern states plan to petition the Environmental Protection Agency on Monday to force tighter air pollution regulations on nine Rust Belt and Appalachian states.

The East Coast states, including New York and Connecticut, have for more than 15 years been subject to stricter air pollution requirements than many other parts of the country. Their governors have long criticized the Appalachian and Rust Belt states, including Ohio, Kentucky and Michigan, for their more lenient rules on pollution from coal-fired power plants, factories and tailpipes — allowing those economies to profit from cheap energy while their belched soot and smog are carried on the prevailing winds that blow across the United States.

All the governors on the petition are Democrats. Gov. Chris Christie of New Jersey, a Republican and a potential presidential candidate in 2016, has not signed it.

The petition comes the day before the Supreme Court is to hear arguments to determine the fate of a related EPA regulation known as the "good neighbor" rule. The regulation, officially called the Cross-State Air Pollution Rule, would force states with coal pollution that wafts across state lines to rein in soot and smog, either by installing costly pollution control technology or by shutting the power plants.

Even if the regulation is upheld, the Eastern governors are seeking stronger constraints on pollution from the Midwest and Rust Belt states.

—Coral Davenport, The New York Times

Tech giants call for surveillance curbs

Eight prominent technology companies, bruised by revelations of government spying on their customers' data and scrambling to repair the damage to their reputations, are mounting a public campaign to urge President Barack Obama and Congress to set new limits on government surveillance.

On Monday, the companies, led by Google and Microsoft, presented a plan to regulate online spying and urged the United States to lead a worldwide effort to restrict it. They accompanied it with an open letter, in the form of full-page ads in national newspapers, including The New York Times, and a website detailing their concerns.

It is the broadest and strongest effort by the companies, often archrivals, to speak with one voice to pressure the government. The tech industry, whose billionaire founders and executives are highly sought as political donors, forms a powerful interest group that is increasingly flexing its muscle in Washington.

"It's now in their business and economic interest to protect their users' privacy and to aggressively push for changes," said Trevor Timm, an activist at the Electronic Frontier Foundation. "The NSA mass-surveillance programs exist for a simple reason: cooperation with the tech and telecom companies. If the tech companies no longer want to cooperate, they have a lot of leverage to force significant reform."

The political push by the technology companies opens a third front in their battle against government surveillance, which has escalated with recent revelations about government spying without the companies' knowledge. The companies have also been making technical changes to try to thwart spying and have been waging a public-relations campaign to convince users that they are protecting their privacy.

—Edward Wyatt and Claire Cain Miller, The New York Times

OPINION OPINION OPINION

The Tech
Established 1881

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LETTERS TO THE EDITOR

Selection of FSILG RAs should be more flexible

MIT is planning changes to the FSILG resident advisor (RA) program for the upcoming academic year. As leaders in the FSILG community, we are concerned about the process used to make these changes and the way they will affect our organizations.

The RA program began in 1998 after the death of Scott Krueger '01; every residential FSILG is required to have an RA living in their house. MIT pays for part of the RA's housing, and in return the RA runs programming and provides support for the FSILG. RAs play many roles for FSILG residents: advisors, mediators, friends, and most of all, providers of common sense. Usually, they become an integral part of the communities in which they reside; otherwise, they would not be able to do their jobs. That said, the program has been inconsistent. Some organizations are very happy with the role their RAs play, while others wish their RA did more to support their members.

A key piece of the RA program is that FSILGs largely get to choose their own RAs, subject to approval by MIT. There are very few restrictions placed on who can be an RA, which means that each organization is free to find someone who will understand their community and integrate themselves into it. Each FSILG has a different culture and different expectations from their RA, so the freedom to find an appropriate person is crucial.

Sadly, MIT is planning to seriously restrict this freedom. Beginning in the 2014-2015 academic year, only graduate students will be eligible to be RAs. We are concerned that this change will seriously decrease the overall quality of the pool of available RAs. Indeed, some FSILGs have noticed that graduate students tend to be much busier than other potential RAs, which impairs their ability to get to know residents and understand the community. Approximately half of the RAs as of Fall 2012 were not graduate students; does it really make sense to fire half the RAs?

We do understand MIT's rationale. MIT will be taking responsibility for RAs' formal employment, which means that FSILGs will never have to deal with possible workman's compensation claims or the like—a welcome thought. The RA Task Force which recommended these changes claims that, if MIT is to officially employ RAs, they absolutely must be graduate students. As MIT students, we are skeptical of the claim that there are no creative options to escape these constraints and allow for wider flexibility in RA choice while still alleviating some of the liability concerns.

As with many recent controversial decisions, the process would have benefited from more student engagement. While the RA Task Force had student members and conducted a survey, there was little dialogue about system's constraints. Many of the FSILG house corporations were enthusiastic about MIT's taking more responsibility for the RA program, but they were not fully aware of the implications. The changes were emailed to students right after Thanksgiving break, during one of the most difficult weeks of the semester. That email presented the changes as final, with absolutely no flexibility for modification or improvement — and the Task Force's report has not been released.

We understand the problems with the current system, and we agree that it needs updating. As MIT students, we would love the chance to work creatively with the administration and our alumni to find a way to allow flexibility in choice of RAs while alleviating liability concerns.

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GUEST COLUMN

Protecting religious freedom at MIT

Recent defacing of Falun Gong posters concerning for MIT's campus, and liberty

By Gavriel Goldfeder

I am a chaplain at MIT, as a well as a rabbi working for Hillel. In case it is not already abundantly clear, I am Jewish.

At the juncture of Buildings 16 and 8, there is a wall where all the religious groups have a poster advertising their basic raison d'etre, the programs they offer, and how to get in touch.

In my five months at MIT, I have only seen one poster defaced there, and it wasn't the one that Hillel put up. It was for a group called Falun Gong — a spiritual discipline that originated in China in the 1990s, and combines meditation with a moral philosophy. Now, that poster is missing. It has been replaced with an advertisement for people who want to be dorm leaders for next year.

This is not my only encounter with what seems like unjust or inhuman treatment of Falun Gong. On most days on my way to work, when the weather is good, there is a display along Massachusetts Avenue, across from building 7. There are usually two women there who seem to be practicing the Qigong exercises — the physical component of Falun Gong. They have literature out as well — pamphlets in English and Chinese which tout the movement's philosophy and its ability to cultivate truth, compassion, and forbearance.

But alongside their promotional literature are a few posters that are written mostly in Chinese, which I clearly do not understand, but the images on these posters are clear and universal: people in hospital beds, dead or near death, faces disfigured by torture of some kind. These people have been tortured for practicing or proselytizing Falun Gong.

For a brief period in the early 1990s, Falun Gong was accepted, and even endorsed, by the Chinese government. By 1999, however, the government started to crack down on Falun Gong, perhaps feeling threatened by its size, independence, and the nature of its spiritual teachings. In October 1999, Falun Gong was declared heretical. Since then, human rights groups have reported that Falun Gong practitioners in China have been subjected to a wide range of human rights abuses at the hands of Chinese authorities. These abuses include extra-judicial imprisonment, forced labor, psychiatric abuse, and torture.

Of course, the defacing of a poster pales in comparison to two decades of human rights violations. But that doesn't mean that the poster, and the treatment of Falun Gong more broadly, are not MIT's problems.

MIT is an institute of technology. This, for many, is tantamount to implicit permission to stay above the fray of politics, religious issues, and the like, in order to focus on the international language of science. But does MIT have some responsibility to learn about human rights violations, to get involved, or to advocate for religious freedom around the world?

If you had asked me a week ago, I would have said this is not MIT's problem. But when that poster was ripped up, and then removed, it became MIT's problem.

Yes, MIT has a right to remain above the fray, to focus on its own raison d'etre, to cultivate genius, to teach world-changers what they need to know in order to change the world.

But when a religious group's material, which I assume was approved to be there, is torn up on MIT property, the Institute can no longer remain above the fray.

CORRECTIONS

The arts events calendar in Tuesday's issue misstated the time for the Chamber Music Society recital on Monday, Dec. 9. It is at 5 p.m., not 5:30 p.m. (There was also a 7 p.m. Chamber Music Society recital on the same day.)

An article in Tuesday's issue on third month of paid maternity leave for EECS graduate students provided an incorrect figure for the number of students who have taken advantage of the Physics Department's third month policy since 2008. The number is three graduate students since 2008, not one or two per year.

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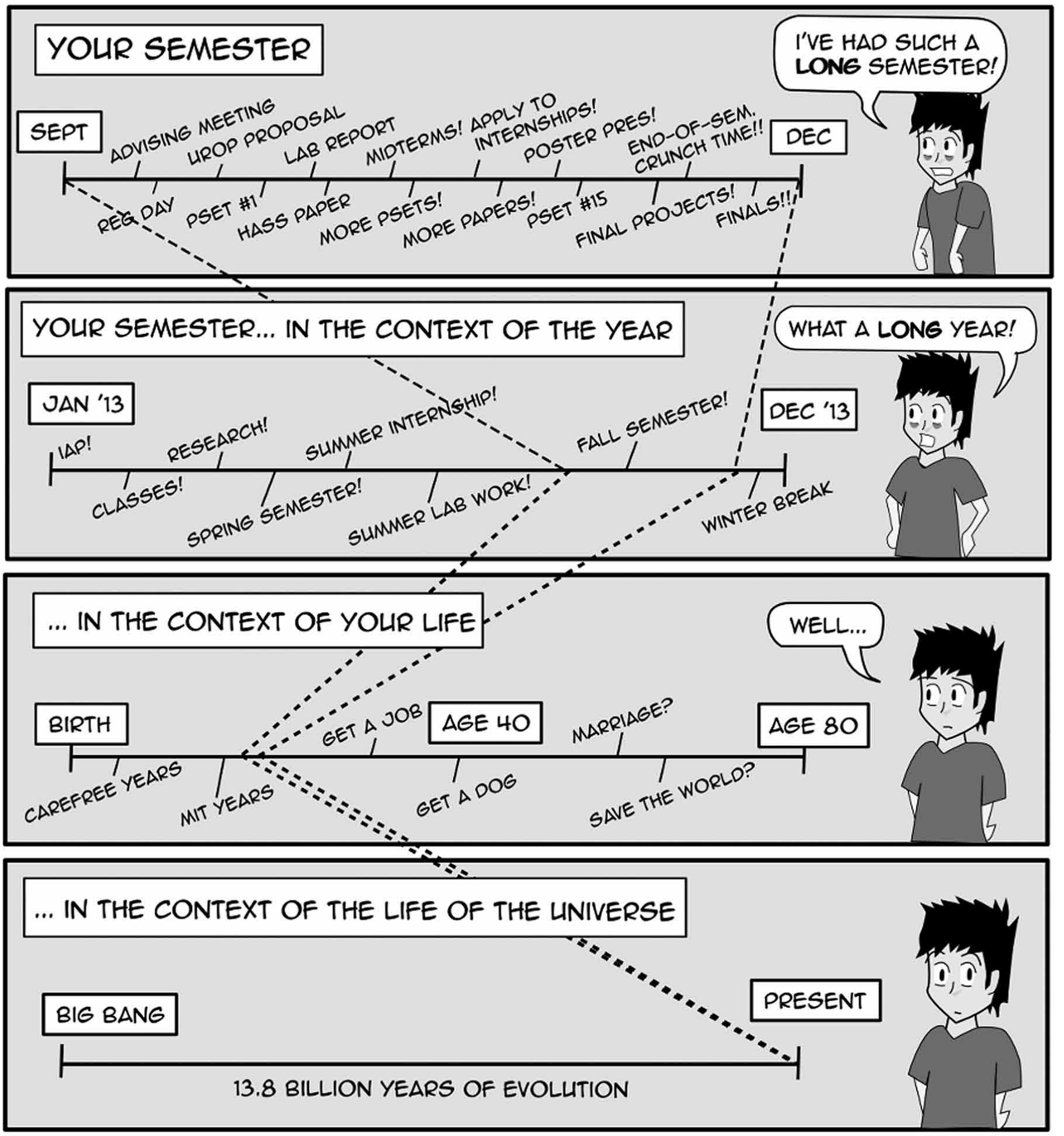
BY ERIKA TRENT



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INNOVATION NATION

Funding the future

Megan Quinn from Kleiner Perkins speaking at MIT VC Conference

By Victoria Young
STAFF WRITER

"What's most interesting to me about the future of technology? Reimagining every human behavior and every human experience through the lens of a mobile device," declares Megan Quinn, an Investment Partner at Kleiner Perkins, a venture capital firm famous for making early investments in companies like Google and Amazon. Having met her briefly during the MIT Silicon Valley Pitch Trek back in October and been impressed by her experience and knowledge of the digital space, I was thrilled to have an opportunity to interview her. Quinn will be joining us on Friday, Dec. 13 at the MIT VC conference, where venture capitalists, entrepreneurs and students will come together to discuss the intersection of entrepreneurship and venture capital. With years of experience leading product development at Google and

Mobile, sensors, and big data are central to much of the work being done at MIT.

Square, Quinn exhibits admirable depth of knowledge and passion for technology. I spoke with Quinn about her thoughts on the future of mobile and personalization, during which she shared her vision for the future of mobile: "We talk a lot about having the world customized around the customer through the smartphone. When you have that experience it feels magical. It feels like you're carrying the passport to the future with you with everything responding to you and your preferences."

Mobile, sensors, and big data are central to much of the work being done at MIT. The future of this technology is being developed this very moment in places like the MIT Media Lab to the MIT SENSEable City Lab, with groundbreaking projects that use data from mobile and sensor technology to create solutions that are sustainable and intelligent. MIT startup EcoVent leverages data from sensors in the room combined with programmable vents to help you personalize room temperatures in different rooms. Quinn added, "Companies are enabling you to detect cavities and call a car through your phone. What is particularly interesting to me is how it relates to the environment around us. Your smartphone knows who you are better than your friends and families and because it has all of these sensors it can tailor the experience around you in the real world to match your needs and desires."

In light of the Engaging Data Conference at MIT where Noam Chomsky discussed the potentially serious consequences of such a connected, data-driven world, I had to ask what Quinn saw in terms of trends for technology companies handling sensitive customer data. Based on her work with technology companies, Quinn replied, "I think we're seeing applications, products and services get more thoughtful about privacy from the start. In the early days of product and app development there were less savvy consumers. People didn't understand what they were giving up. Now we have a more savvy consumer base and much more thoughtful developer base. Developers are giving people more options. That is the heart of ensuring privacy is by giving consumers options they understand and languages they understand."

Given her success working to help build companies and products, Quinn also does a lot to stay on top of trends: "There are three things I do proactively: I read as much as humanly possible — the very first thing I do first thing in the morning is check Twitter. It's my ongoing stream of data and information that matters to me that I have curated for myself. I also use Flipboard to find things I might not have discovered on my own. I read obsessively and try to understand what smart people who focus on these areas think about these trends to develop a point of view."

An even better way to stay informed? Constantly meet with interesting people in your industry. Quinn has over 45 meetings with different people in a week, ranging from people who are senior executives from public companies to college students who are trying to learn about how they can get into the startup. She said, "By having all these different touchpoints I learn about different areas of development and innovation that I can't get through reading. The human interaction piece is very important. Also family, I have four sisters, two older to two younger. We range in age from 36-24. My sisters are my best signals for what apps are resonating with the average consumer."

How does Quinn think the industry should create more diversity in the ranks of leaders by including more women? As a featured speaker on our Women In VC Panel, she thoughtfully provided her perspective: "You can't be what you can't see.

Understanding yourself is most important in finding mentors who have achieved success in a way that resonates with you.

It never would have occurred to me a decade ago that venture capital is something I could do as a young woman at age 31 with only product experience. I just looked up and down Sand Hill and didn't see folks who looked at me. They were by and large men with financial services backgrounds instead of tech and product backgrounds. What is important to me is that we put more women in leadership roles in VC and technology so that the next generation can see these opportunities as an option for themselves. We all need to have people we can aspire to be like." Disagreeing with the notion that cultivating interest in specific industries for women starts from the bottom in places like middle school and high school to then trickle up through the various ranks of tech companies, Quinn believes the inverse: "I think the best way is to have more women in the later stages of their career that others can aspire to be like. Foundationally, companies need to be more thoughtful in terms of having a more diverse leadership team and board. It's better for the overall industry and give young women more things to be like. Facts and data show that more diversity leads to stronger companies."

What are some of the best ways to get into technology and help promote more balanced, diverse leadership?

What are some of the best ways for both men and women to get into technology and help promote more balanced, diverse leadership? According to Quinn, "The most important thing for someone to do starting in the tech industry is [to find] mentors. Tech is an extremely tight knit community especially in the Bay area, parts of Boston, and parts of LA. I think it's very important for folks who are starting out in the industry [because they] can give them advice and time and be mentors and role models for them. It's not necessarily even having to find lots of mentors or people who are going to spend hours a week or hours a month with you. It's about finding people who you look up to." In fact, Quinn suggests that finding mentors who you admire and developing a mixture of those who you meet with regularly and others who you may simply follow from afar is the best combination. Understanding yourself and what your values and aspirations are ultimately is the most important so that you can find mentors who have achieved success in a way that resonates with you.

Quinn explains, "I observe who has achieved success but had done so in a way that was thoughtful, collaborative and more in tune with how I wanted to develop. I still have people at Google and Square who I meet with once a month. There are also people from afar, for example Marissa Mayer. I've known her for a decade since I was a part of her organization for much of my time at Google. I would consider her a friend, but she's also the CEO of Yahoo! and she has amazing product sense. She has achieved her success in a way that is tremendously inspiring."

From discovering the next wave of promising technology startups to finding personal mentorship, Quinn provided incredibly thoughtful insights on entrepreneurship and venture capital. To hear her and other venture capitalists and entrepreneurial thought leaders speak at MIT this Friday, sign up at: *http://www.mitvcconference.com/2013/registration.html*.

EVENTS
DEC. 10 – DEC. 16

TUESDAY

(4:00 p.m. – 5:00 p.m.) The High Redshift Universe Next Door — 37-252

(9:00 p.m. – 10:00 p.m.) Colleges Against Cancer Pink Dessert Night — W7

WEDNESDAY

(6:00 p.m. – 8:30 p.m.) Life Sciences Circle Event: Next-omics - Personalized Medicine beyond Genomics — Broad Institute

THURSDAY

(12:00 p.m. – 1:00 p.m.) Crowd Sourced Mapping for Open Government — E25-401

(2:00 p.m. – 3:30 p.m.) Finals Week Study Break-Cookies with Canines — Hayden Library

FRIDAY

(4:00 p.m. – 6:00 p.m.) MIT Asian Dance Team presents "Illusions" — Kresge Little Theater

(4:30 p.m. – 6:00 p.m.) End-of-semester stargazing — 37-roof

SATURDAY

(7:00 p.m. – 9:00 p.m.) Association of Puerto Rican Students Xmas Dinner — 10-Bush Room

MONDAY

(12:00 p.m. – 2:00 p.m.) Winterfest 2013 presented by President Reif and Mrs. Reif — Walker Memorial

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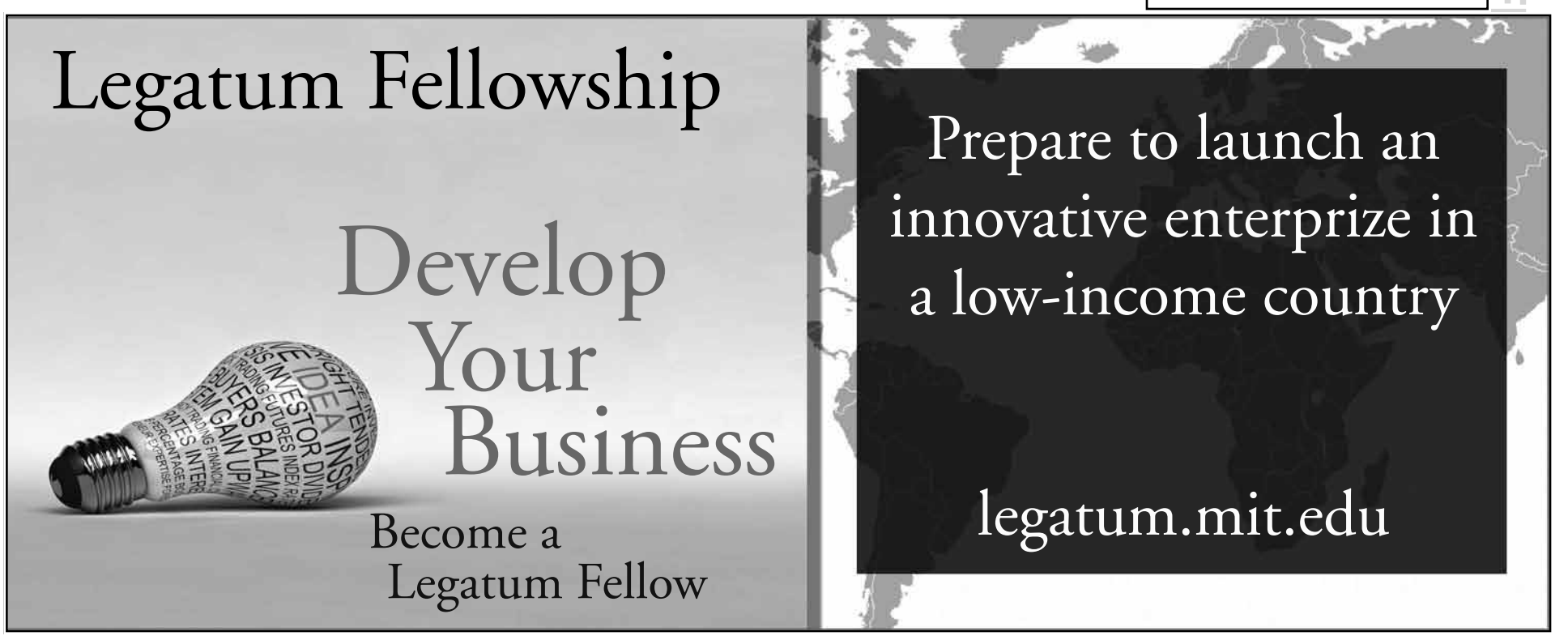
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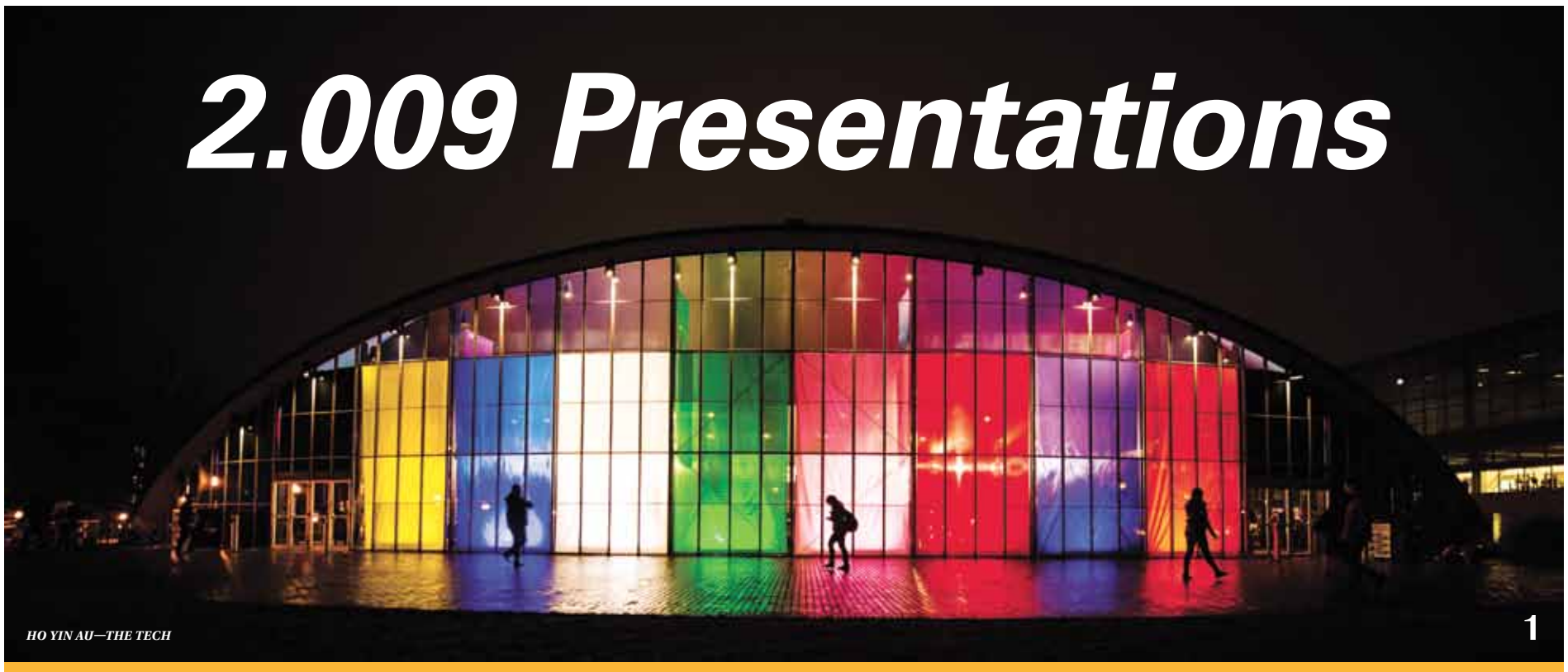
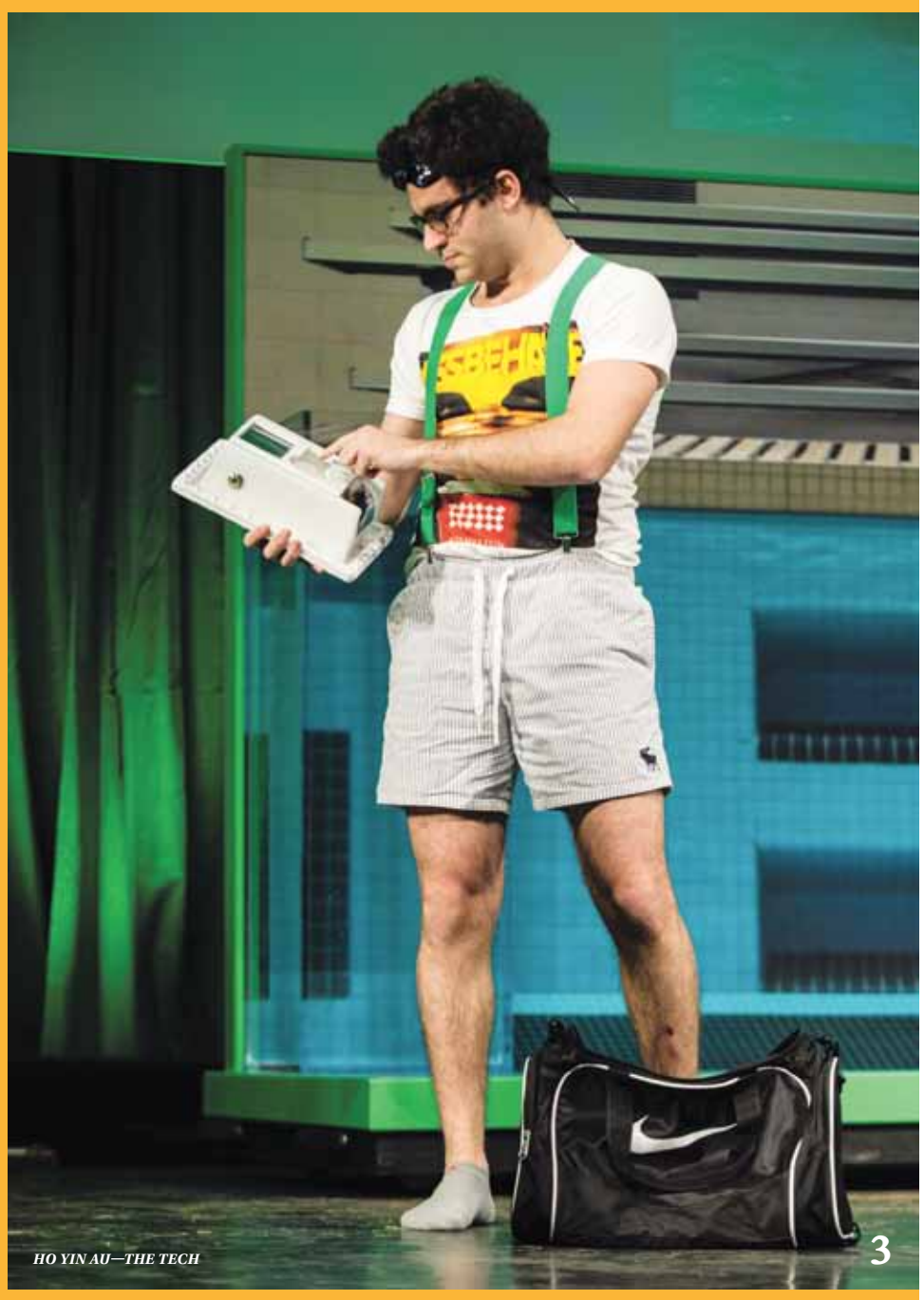
2.009 Presentations



HO YIN AU—THE TECH 1

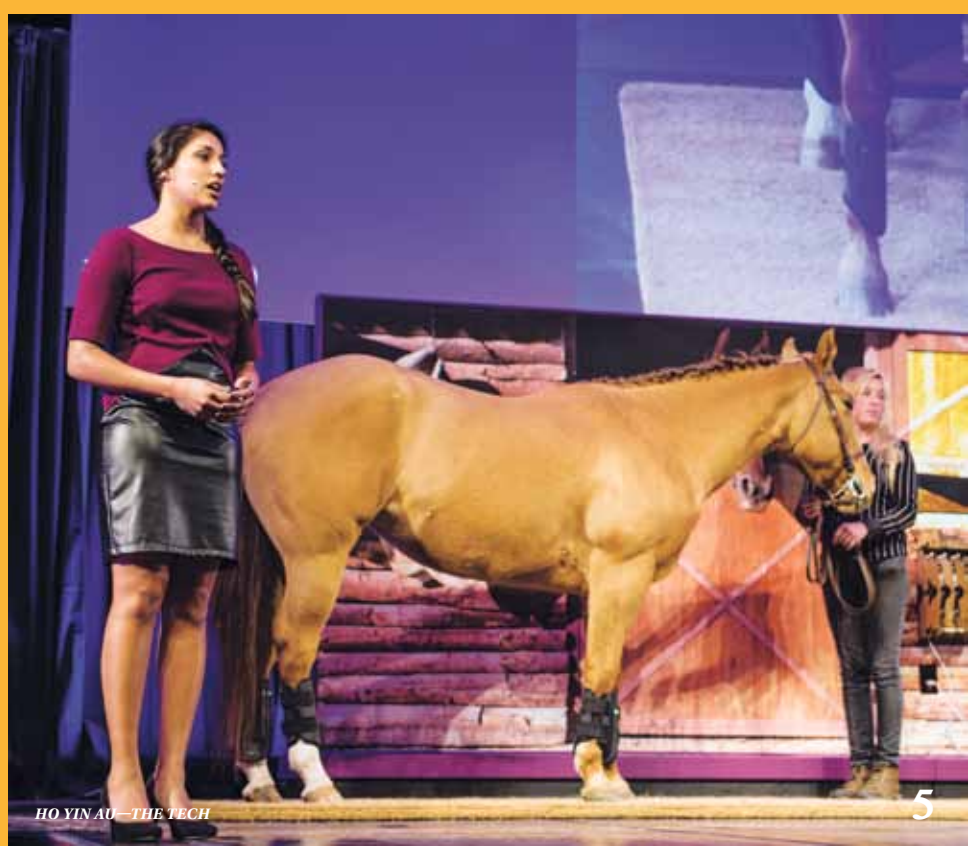
HO YIN AU—THE TECH 2

1. Kresge Auditorium's windows were decorated in the colors of the teams participating in the presentations
2. Professor David R. Wallace, the lead teacher for 2.009, was the master of ceremonies for the final presentations which took place in a packed Kresge Auditorium.
3. Green Team demoed "Poseidon," a device which projected a green dot on the bottom of any swimming pool to help swimmers keep up with their target pace
4. Professor David R. Wallace was recognized by his students at the end of the 2.009 final presentations.
5. Team Purple created a product which prevents equine leg injuries. For their product demo, they brought in "Pinky," the horse which they had worked with during the semester.



HO YIN AU—THE TECH 3

HO YIN AU—THE TECH 4



HO YIN AU—THE TECH 5

INTERVIEW

Art via recycling

Artist will create MIT-themed sculptures from items donated this Friday

By Grace Young
ARTS EDITOR

Nearly every month since 2011 MIT has hosted a "Choose-to-Reuse" event in the Stata Center lobby, sponsored by the Department of Facilities, Sustainability@MIT, and Green. During the event, community members donate and trade unwanted items. The overarching goal is to promote a culture of recycling and reducing waste. This year they are giving the program an arts-spin by collaborating with sculptural artist Kyle Haines. Haines will repurpose items from Choose-to-Reuse, as well other items found at MIT, into MIT-themed sculptures. His final pieces will be displayed on campus during Earth Week this coming April. He will begin collecting goods at the next Choose-to-Reuse event this Friday. He caught up with *The Tech* to explain his motives behind the project and how art can relate to the MIT community.

The Tech: Can you tell us more about the sculpture you are planning? What is a crowd-sourced sculpture, and what does it mean to you?

Kyle Haines: I'm going to try to keep the designs of the sculptures under wraps for now, but I can tell you that the "crowd-sourced" sculpture will show something that I have found to completely embody the MIT culture. A crowd-sourced sculpture is something completely new to me. I see it as an interesting challenge and a sort of artsy time capsule. Any MIT affiliate can head over to a Choose-To-Reuse event before April and if they donate a specific item to be used in the sculpture I have to use at least part of it.

TT: Have you done anything similar before? What inspired you?

KH: Almost all of my art is centered around some sort of recycled or reused material. I particularly love and usually use antique metal odds and ends. However, I've never come close to tackling a project like this. As a junk artist, I was excited by all of the stuff that goes through the Choose-To-Reuse program, and I really wanted to find a way to use the less-than-desirable material that sometimes pops up. So, here we are!

> **'I really wanted to find a way to use the less-than-desirable material that sometimes pops up.'**
>
> **— Kyle Haines**
> SCULPTURAL ARTIST

TT: Do you think engineers – or broadly MIT students – can learn from art? How?

KH: I don't know if everyone can learn something from art, but I think just about everyone can benefit from it. Art can help you to see the world more clearly, it can expose a new side of something you thought you already understood, it can invite you into an entirely different state of mind. You're not going to have an epiphany every time you see a Picasso, but there are many things that even the most brilliant engineer might glean from a visit to a museum.

TT: How can a community can reduce its waste and be more energy conscious? Why is this important to you?

KH: That is a loaded question, and I'm nowhere near an expert on the subject. My initial thought is to tell people to buy more sustainable goods, to learn how to fix things, and to repurpose instead of throwing out. I know that's idealistic, and pretty loosely stated, but it's the best I've got.

TT: How did you connect with MIT?

KH: My girlfriend is a junior here, so I've visited quite a lot in the past few years. The community here has really pulled me in. The people are so wonderful and I always enjoy the trip.

TT: The sculptures will be MIT themed. If you don't mind divulging, what kinds of themes do you expect to explore?

KH: My hope is to make all of the sculptures MIT friendly, using either direct references to MIT culture or somewhat loose connections to science, technology, and the like. I'm not completely settled on everything that will be made, and I do want to try and keep things somewhat secret until April, but I can give you some information: should all go well, the show will involve a whale, The Tech, computer cases, comic book art, and an old shirt.

You can donate items to Haines' sculpture at the next Choose-To-Reuse event, Friday, Dec. 13, from 9 a.m. to 2 p.m. in the Stata Center TMSC lobby, by the mirror sculpture on the first floor.

KYLE HAINES
"Mommy's Little Soldier," a sculpture artist Kyle Haines created in 2011 from projector parts, fan parts, saucepan, butter knife, steel wire, and forks. **Haines will create a series of MIT-themed sculptures composed from items collected from the Choose-to-Reuse event this Friday.**

KYLE HAINES
"Pugilist Oil Co." from Haines' series "God's Golden Garbage," created in 2011 from oilcans, steel wire, and antique fuses.

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STARR FORUM

The "Snowden Affair":
Intelligence and Privacy in a Wired World

Thurs, Dec 12, 2013
4:30p - 6:00p | MIT Bldg E14-674 | 75 Amherst St, Cambridge

About the speakers:

Moderating:
Admiral William Fallon, former head of CENTCOM

Panelists:
Susan Chira, assistant managing editor, *New York Times*
Chas Freeman, American diplomat, former ambassador to Saudi Arabia
Joel Brenner, former senior counsel, National Security Agency

American and British spies infiltrate fantasy realm of online games World of Warcraft and Second Life

Newly disclosed classified documents reveal surveillance through online fantasy games

By Mark Mazzetti and Justin Elliott
THE NEW YORK TIMES

Not limiting their activities to the earthly realm, U.S. and British spies have infiltrated the fantasy worlds of World of Warcraft and Second Life, conducting surveillance and scooping up data in the online games played by millions of people across the globe, according to newly disclosed classified documents.

Fearing that terrorist or criminal networks could use the games to communicate secretly, move money or plot attacks, the documents show, intelligence operatives have entered terrain populated by digital avatars that include elves, gnomes and supermodels.

The spies have created make-believe characters to snoop and to try to recruit informers, while also collecting data and contents of communications between players, according to the documents, disclosed by the former National Security Agency contractor Edward J. Snowden. Because militants often rely on features common to video games — fake identities, voice and text chats, a way to conduct financial transactions — U.S. and British intelligence agencies worried that they might be operating there, according to the papers.

Online games might seem innocuous, a top-secret 2008 NSA document warned, but they had the potential to be a "target-rich communication network" allowing intelligence suspects "way to hide in plain sight." Virtualgames "are an opportunity" another 2008 NSA document declared.

But for all their enthusiasm — so many CIA, FBI and Pentagon spies were hunting around in Second Life, the document noted, that a "confliction" group was needed to avoid collisions — the intelligence agencies may have inflated the threat.

The documents do not cite any counterterrorism successes from the effort, and former U.S. intelligence officials, current and former gaming company employees and outside experts said in interviews that they knew of little evidence that terrorist groups viewed the games as havens to communicate and plot operations.

Games "are built and operated by companies looking to make money, so the players' identity and activity is tracked," said Peter W. Singer of the Brookings Institution, an author of "Cybersecurity and Cyberwar: What Everyone Needs to Know." "For terror groups looking to keep their communications secret, there are far more effective and easier ways to do so than putting on a troll avatar."

The surveillance, which also included Microsoft's Xbox Live, could raise privacy concerns. It is not clear exactly how the agencies got access to gamers' data or communications, how many players may have been monitored or whether Americans' communications or activities were captured.

One U.S. company, the maker of World of Warcraft, said that neither the NSA nor its British counterpart, the Government Communications Headquarters, had gotten permission to gather intelligence in its game. Many players are Americans, who can be targeted for surveillance only with approval from the nation's secret intelligence court. The spy agencies, though, face far fewer restrictions on collecting certain data or communications overseas.

"We are unaware of any surveillance taking place," said a spokesman for Blizzard Entertainment, based in Irvine, Calif., which makes World of Warcraft. "If it was, it would have been done without our knowledge or permission."

A spokeswoman for Microsoft declined to comment. Philip Rosedale, the founder of Second Life and a former chief executive officer of Linden Lab, the game's maker, declined to comment on the spying revelations. Current Linden executives did not respond to requests for comment.

A Government Communications Headquarters spokesman would neither confirm nor deny any involvement by that agency in gaming surveillance, but said its work is conducted under "a strict legal and policy framework," with rigorous oversight. An NSA spokeswoman declined to comment.

Intelligence and law enforcement officials became interested in games after some became enormously popular, drawing tens of millions of people worldwide, from preteens to retirees. The games rely on lifelike graphics, virtual currencies and the ability to speak to other players in real time. Some gamers merge the virtual and real worlds by spending long hours playing and making close online friends.

In World of Warcraft, players share the same fantasy universe — walking around and killing computer-controlled monsters or the avatars of other players, including elves, animals or creatures known as orcs. In Second Life, players create customized human avatars that can resemble themselves or take on other personas — supermodels and bodybuilders are popular — who can socialize, buy and sell virtual goods, and go places like beaches, cities, art galleries and strip clubs. In Microsoft's Xbox Live service, subscribers connect online in games that can involve activities like playing soccer or shooting at each other in space.

According to U.S. officials and documents that Snowden provided to *The Guardian*, which shared them with *The New York Times* and *ProPublica*, spy agencies grew worried that terrorist groups might take to the virtual worlds to establish safe communications channels.

In 2007, as the NSA and other intelligence agencies were beginning to explore virtual games, NSA officials met with the chief technology officer for the manufacturer of Second Life, the San Francisco-based Linden Lab. The executive, Cory Ondrejka, was a former Navy officer who had worked at the NSA with a top-secret security clearance.

He visited the agency's headquarters at Fort Meade, Md., in May 2007 to speak to staff members over a brown bag lunch, according to an internal agency announcement. "Second Life has proven that virtual worlds of social networking are a reality: come hear Cory tell you why!" said the announcement. It added that virtual worlds gave the government the opportunity "to understand the motivation, context and consequent behaviors of non-Americans through observation, without leaving U.S. soil."

Ondrejka, now the director of mobile engineering at Facebook, said through a representative that the NSA presentation was similar to others he gave in that period, and declined to comment further.

Even with spies already monitoring games, the NSA thought it needed to step up the effort.

"The Sigint Enterprise needs to begin taking action now to plan for collection, processing, presentation and analysis of these communications," said one April 2008 NSA document, referring to "signals intelligence." The document added, "With a few exceptions, NSA can't even recognize the traffic, meaning that the agency could not distinguish gaming data from other Internet traffic.

By the end of 2008, according to one document, the British spy agency, known as GCHQ, had set up its "first operational deployment into Second Life" and had helped the police in London in cracking down on a crime ring that had moved into virtual worlds to sell stolen credit card information. The British spies running the effort, which was code-named Operation Galician, were aided by an informer using a digital avatar "who helpfully volunteered information on the target group's latest activities."

Though the games might appear to be unregulated digital bazaars, the companies running them reserve the right to police the communications of players and store the chat

Spies, Page 15

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Sipser, from Page 1

1980, after completing a Bachelors of Arts in mathematics from Cornell University in 1974 and PhD in engineering from UC Berkeley in 1980. According to the MIT News Office, under his leadership as department head of Mathematics, the department secured enough funding to provide fellowships for first-year graduate students. In addition, the number of undergraduate mathematics majors has increased 54 percent since 2004 to 287 students.

—Anthony Yu

Course 2 students' 2.009 presentations

Product engineering class finishes

2.009, from Page 1

ers to read turn-by-turn directions fed from a GPS navigation system without looking away from the road. Mira projects the turn-by-turn directions in front of the wearer's eye at an apparent distance of fifteen feet. The device could be profitably sold at around $399 according to the team's pitch.

The Purple Team's EquiTemp was designed to help horse riders determine when their horse is warmed-up and ready for a workout. The device consists of four temperature-sensing boots that the horse wears and a receiver that the rider wears like a wristwatch. Color-coded LED's on the receiver indicate when each leg is warmed up sufficiently. The device is intended to help prevent injuries caused by insufficient warm ups.

An animatronic otter named Ollie was the Red Team's design for a "virtual companion" to help dementia patients deal with stress. The students said a price of $500 would allow for profitable sales and said their product would be unique by being available to patients in assisted living facilities.

The Pink Team presented a mobile farm stand that the Mattapan Food and Fitness Coalition (MFFC) could use to help distribute produce. The cart is decorated with bright colors and a canopy to preserve the look of traditional farm stands. It is lightweight enough to be pulled by a bicycle, allowing the MFFC to promote fitness while delivering healthy produce. Cheetiri S. Smith '14, a member of the team, stressed in an interview that the cart is about "so much more than ... getting [produce] from A to B."

Poseidon is the Green Team's submersible device that projects a moving green dot onto the bottom of a pool at a customizable pace. It is meant to help triathletes pace themselves while training.

The White Team's BitDex helps measure drill bits more quickly and more accurately than traditional methods. They said it would prevent machine shop errors that can cost $250 each. The tool measures bits with an optical sensor and supposedly could sell profitably for around $400.

SAN-X was the Blue Team's project, a device that cleans wrestling mats more effectively than current mop-and-bucket methods. The team said SAN-X kills 99.9 percent of germs with UV light and steam rather than chemicals and will help protect wrestlers from skin diseases. They said they intended the product to have a $3500 retail price.

The Yellow Team created an instructive yoga mat called Glow. The mat, which works with computer software on an attached laptop, shows the student a video of a yoga pose and uses pressure sensors to determine if the student is executing the pose properly. The device uses color-coded LED's to communicate to the student if they are distributing their weight properly.

Reflecting on the experience, Christiana Rosales of the Silver Team said that the project was "a lot of work" but that it probably taught her the most she's learned at MIT.

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Marshall, from Page 1

Sinha also co-founded and currently leads a summer program for girls called SHINE, which combines dance lessons and math classes for seventh grade girls struggling in school. She created the program with the help of the MIT Public Service Center. "I saw that the problem was not girls' inherent mathematical ability, but their self-confidence." Sinha envisions an international version of the program and hopes to modify it to fit to the U.K. curriculum and standards in order to implement SHINE in Cambridge in the U.K. "It is my goal to become a professor of mathematics while staying involved with SHINE," said Sinha.

Catherine Koch

Biology major Catherine Koch plans to obtain a Master's of Science in Radiation Biology at Oxford University and hopes to also obtain an MD/PhD in order to practice as a pediatric oncologist. Koch initially came to MIT with an interest in participating in the UROP program, and has recently been working in Professor David M. Sabatini's lab at the Whitehead Institute on cancer metabolism research. According to the MIT News Office Press release, she contributed as an author to a publication in Nature Genetics describing a new cancer therapy based on cancer metabolism.

"Research is a very international experience. It broadens your perspective," said Koch of her experience in the MISTI Italy program.

Koch's interests also include playing on the MIT Men's Hockey team and past work in a trauma hospital, which fueled her drive to become a physician scientist.

Grace Young

Grace Young (a *Tech* Arts editor) is a senior studying Mechanical and Ocean Engineering with minors in History of Art and Architecture. She plans on pursuing a Master of Science and PhD in engineering science.

"My passions for engineering and the ocean developed separately. At MIT I found ways to combine my love of robotics and the sea." Calling this mix the "perfect storm," Young first found her passion with robotics when she joined her high school's robotics team. Young said that her internship at the National Oceanic and Atmospheric Administration showed her "how important it is for scientists and policy makers to work together," and plans to continue working in ocean engineering technology and policy as a career. "I want to develop technology that helps implement good ocean management policy, as well as have input in making ocean policy."

At Oxford, Young wants to work at the Global Ocean Commission. "It's a great place for me to develop as a scientist and gain an international perspective while interacting with policy makers."

Colleen Loynachan

Colleen Loynachan will be completing her degree in Materials Science and Engineering and plans to pursue a Master of Science in Biomedical Engineering and Biomedical Research at Imperial College London. "Imperial offers a unique Master's Degree in biomedical engineering with biomaterials," said Loynachan, whose current research background is in materials science with an emphasis on biomaterials. "However, in the future, I hope to work at the interface of materials science and medicine doing translational research."

Loynachan spent her past spring studying at Oxford and previously spent her summer at the California Institute of Technology, where she co-authored a research publication in the Nano Letters journal with Professor Julia Greer. Loynachan received the Barry M. Goldwater Scholarship, an award established by Congress for college students studying science and engineering, and is currently conducting research in protein aggregation with Assistant Professor Polina O. Anikeeva '09.

"I'm mainly motivated to pursue my project because of its therapeutic potential. I believe the solution to many global health and biomedical problems, particularly a range of disease treatments, exists in the creative design of advanced biomaterials that translate into clinical practice," said Loynachan. She hopes to complete a PhD and postdoctoral studies in the U.S. following her studies in the U.K.

All four recipients thanked Kim Bernard of the MIT Distinguished Fellowship Office and everyone involved in the MIT process for their commitment and help throughout the application. "You really get to learn about yourself through applying," added Koch.

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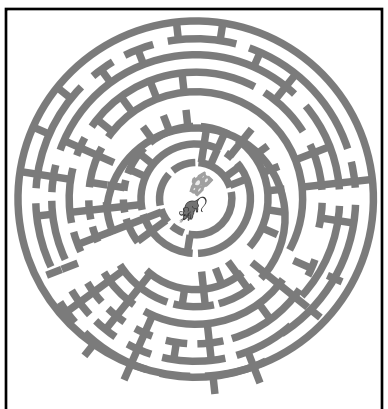

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MBTA, from Page 1

than the buses.

For MIT students, the Central and Kendall Red Line stops near the north and east sides of campus, respectively, are nearest dorms and Cambridge FSILGs. Expanded hours on the Green Line will likely benefit a number of FSILGs in and around Boston, from Phi Kappa Theta near the Copley Square stop on the east side of Boston, to Sigma Alpha Epsilon near the Blandford Square station on the western end of the city and Zeta Beta Tau in Brookline.

—Will Conway

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Games may be under watch

Evidence of agencies surveilling multiplayer games

Spies, from Page 12

dialogues in servers that can be searched later. The transactions conducted with the virtual money common in the games, used in World of Warcraft to buy weapons and potions to slay monsters, are also monitored by the companies to prevent illicit financial dealings.

In the 2008 NSA document, titled "Exploiting Terrorist Use of Games & Virtual Environments," the agency said that "terrorist target selectors" — which could be a computer's Internet Protocol address or an email account — "have been found associated with Xbox Live, Second Life, World of Warcraft," and other games. But that document does not present evidence that terrorists were participating in the games.

Still, the intelligence agencies found other benefits in infiltrating these online worlds. According to the minutes of a January 2009 meeting, GCHQ's "network gaming exploitation team" had identified engineers, embassy drivers, scientists and other foreign intelligence operatives to be World of Warcraft players — potential targets for recruitment as agents.

At Menwith Hill, a Royal Air Force base in the Yorkshire countryside that the NSA has long used as an outpost to intercept global communications, U.S. and British intelligence operatives started an effort in 2008 to begin collecting data from World of Warcraft.

One NSA document said that the World of Warcraft monitoring "continues to uncover potential Sigint value by identifying accounts, characters and guilds related to Islamic extremist groups, nuclear proliferation and arms dealing." In other words, targets of interest appeared to be playing the fantasy game, though the document does not indicate that they were doing so for any nefarious purposes. A British document from later that year said that GCHQ had "successfully been able to get the discussions between different game players on Xbox Live."

By 2009, the collection was extensive. One document says that while GCHQ was testing its ability to spy on Second Life in real time, British intelligence officers vacuumed up three days' worth of Second Life chat, instant message and financial transaction data, totaling 176,677 lines of data, which included the content of the communications.

For their part, players have openly worried that the NSA might be watching them.

In one World of Warcraft discussion thread, begun just days after the first Snowden revelations appeared in the news media in June, a human death knight with the user name "Crrassus" asked whether the NSA might be reading game chat logs.

"If they ever read these forums," wrote a goblin priest with the user name "Diaya," "they would realize they were wasting" their time.

Even before the U.S. government began spying in virtual worlds, the Pentagon had identified the potential intelligence value of video games. The Pentagon's Special Operations Command in 2006 and 2007 worked with several foreign companies — including an obscure digital media business based in Prague — to build games that could be downloaded to mobile phones, according to people involved in the effort. They said the games, which were not identified as creations of the Pentagon, were then used as vehicles for intelligence

Spies, Page 18

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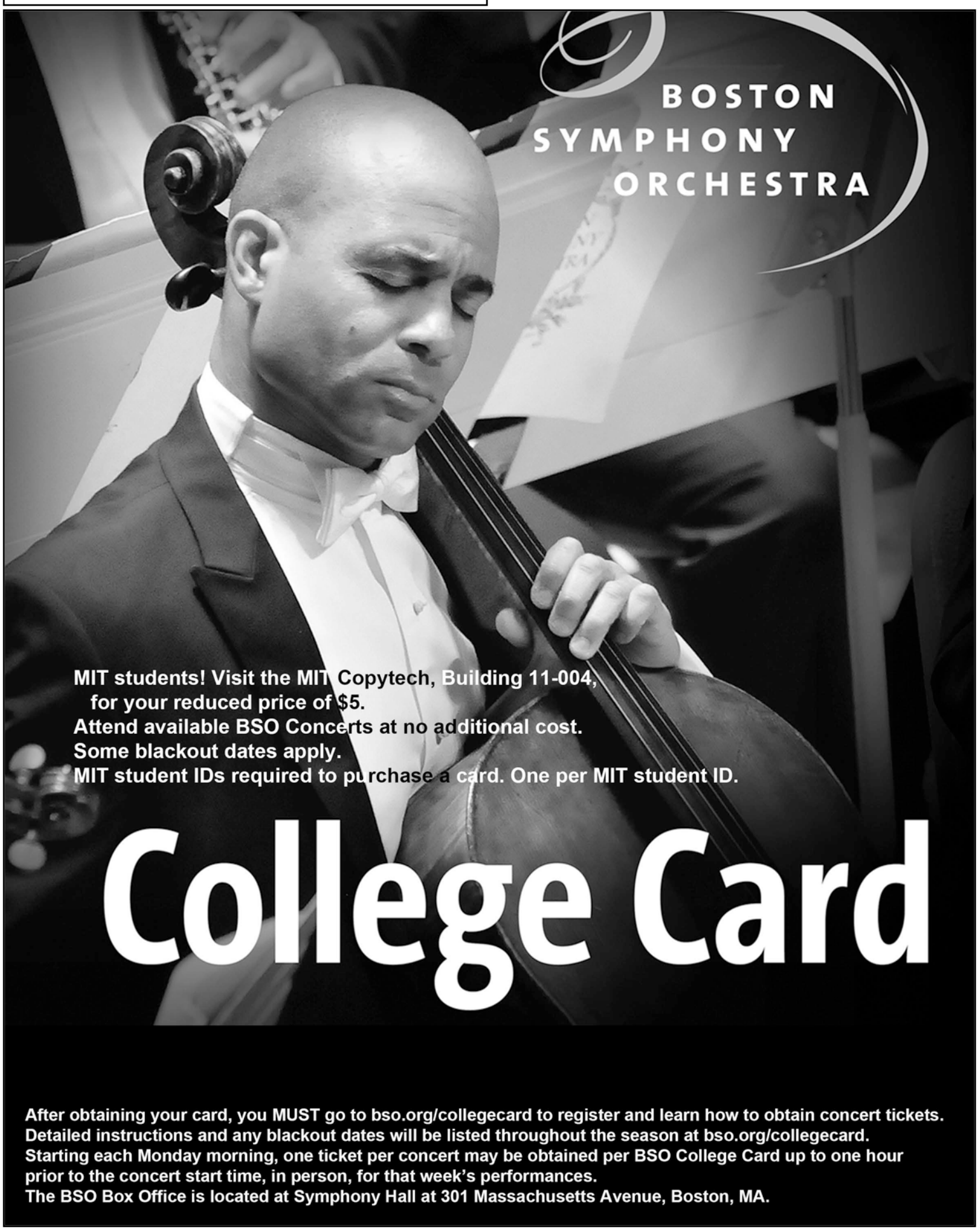
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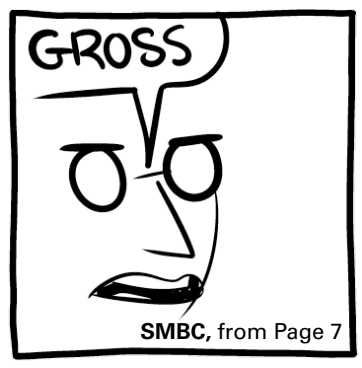

SMBC, from Page 7

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Solution to Stumper

from page 5

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Solution to Advice

from page 7

A	B	E	L		M	A	G	I		A	B	A	S	H
M	O	D	E		C	P	A	S		S	O	C	H	I
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N	I	A		D	R	O	N	E		I	N	E	R	T
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			R	O	I			M	U	S	H			
M	A	K	I	N	G	A	M	I	S	T	A	K	E	
A	D	A	G	E		T	I	L	T		N	A	S	H
L	A	T	I	N		O	R	A	L		T	Y	P	E
E	M	E	N	D		Z	O	N	E		S	O	N	Y

Solution to Sodoku

from page 6

1	9	2	6	4	8	5	3	7
6	5	7	2	9	3	1	8	4
4	8	3	5	1	7	9	2	6
5	7	1	8	2	6	3	4	9
2	3	4	9	5	1	7	6	8
9	6	8	7	3	4	2	1	5
7	2	6	3	8	5	4	9	1
3	4	5	1	6	9	8	7	2
8	1	9	4	7	2	6	5	3

Solution to Techdoku I

from page 6

5	6	4	3	2	1
6	1	5	4	3	2
3	4	2	1	6	5
2	3	1	6	5	4
4	5	3	2	1	6
1	2	6	5	4	3

Solution to Techdoku II

from page 7

6	4	5	1	7	8	2	3
3	1	2	6	4	5	7	8
2	8	1	5	3	4	6	7
4	2	3	7	5	6	8	1
1	7	8	4	2	3	5	6
7	5	6	2	8	1	3	4
5	3	4	8	6	7	1	2
8	6	7	3	1	2	4	5

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Indications of surveillance in games

Tech companies give varied responses to allegations of surveillance

Spies, from Page 15

agencies to collect information about the users.

Eager to cash in on the government's growing interest in virtual worlds, several large private contractors have spent years pitching their services to U.S. intelligence agencies. In one 66-page document from 2007, part of the cache released by Snowden, the contracting giant SAIC promoted its ability to support "intelligence collection in the game space," and warned that online games could be used by militant groups to recruit followers and could provide "terrorist organizations with a powerful platform to reach core target audiences."

It is unclear whether SAIC received a contract based on this proposal, but one former SAIC employee said that the company at one point had a lucrative contract with the CIA for work that included monitoring the Internet for militant activity. An SAIC spokeswoman declined to comment.

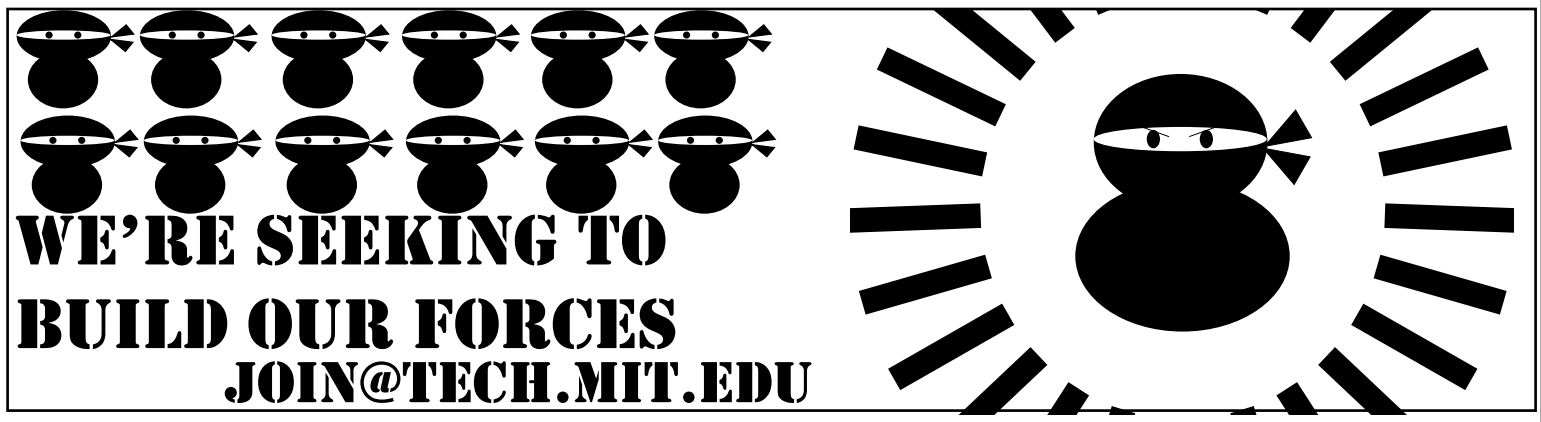
In spring 2009, academics and defense contractors gathered at the Marriott at Washington Dulles International Airport to present proposals for a government study about how players' behavior in a game like World of Warcraft might be linked to their real-world identities.

"We were told it was highly likely that persons of interest were using virtual spaces to communicate or coordinate," said Dmitri Williams, a professor at the University of Southern California who received grant money as part of the program.

After the conference, both SAIC and Lockheed Martin won contracts worth several million dollars, administered by an office within the intelligence community that finances research projects.

It is not clear how useful such research might be. A group at the Palo Alto Research Center, for example, produced a government-funded study of World of Warcraft that found "younger players and male players preferring competitive, hack-and-slash activities, and older and female players preferring noncombat activities," such as exploring the virtual world. A group from the nonprofit SRI International, meanwhile, found that players under age 18 often used all capital letters both in chat messages and in their avatar names.

Those involved in the project were told little by their government patrons. According to Nick Yee, a Palo Alto researcher who worked on the effort, "We were specifically asked not to speculate on the government," motivations and goals.



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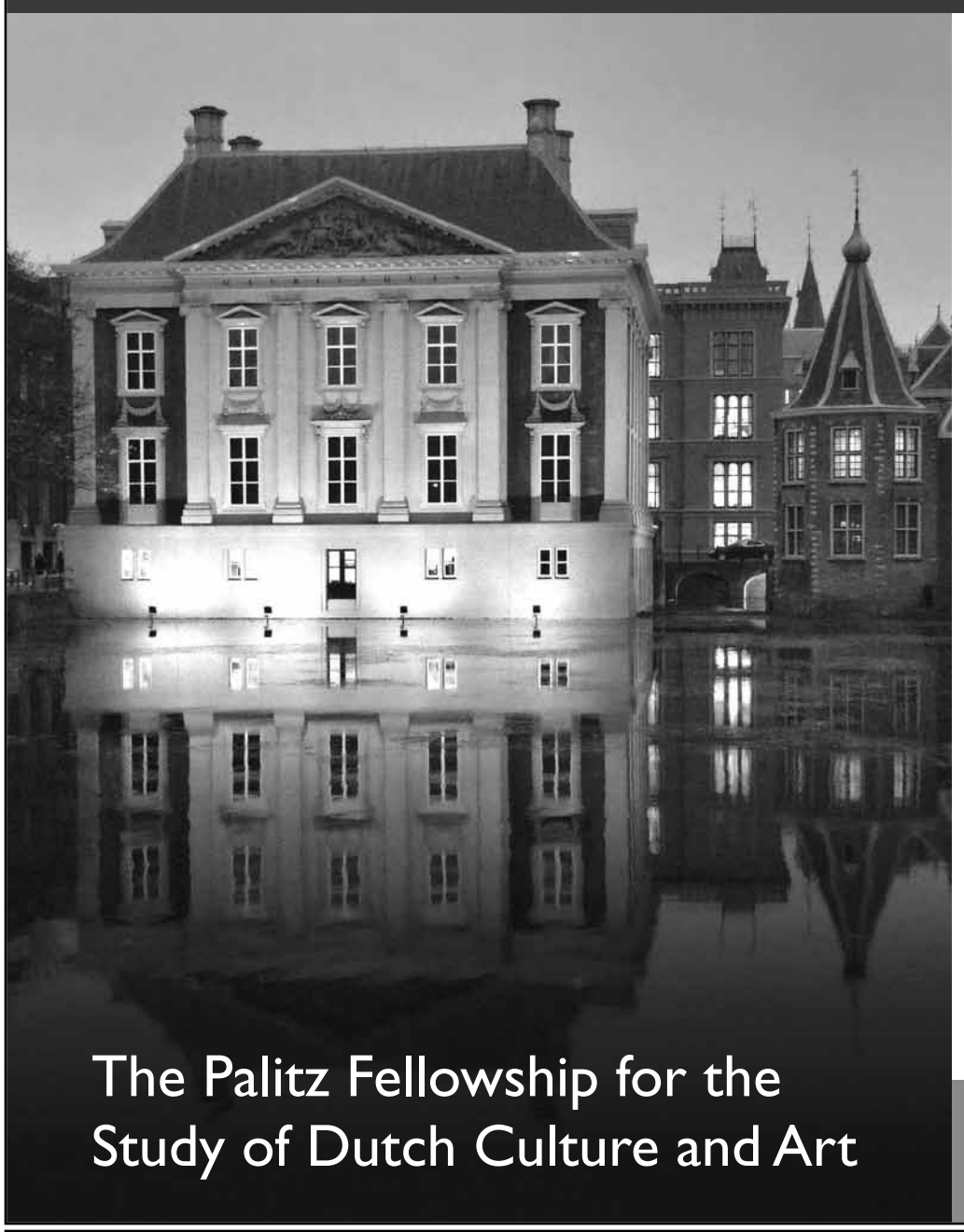

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SPORTS SHORT

MIT squash team shuts out Bard College, 9-0

After winning against Bryant University by a score of 6-3 last night, the MIT squash team went on to defeat Bard College by a score of 9-0 at home on Saturday morning. This brings Tech's season record to 6-4.

Three different Engineers, all three of whom are juniors, held their opponents to zero points in at least one of their three games. David W. Bian '15 won his first and third games against Jeremy Goldsher, 11-3, 11-3, and won the middle game by a score of 11-0. At No. 5, Peter G. Riley '15 defeated Satwiak Srikrishnan by a score of 11-4, 11-4 in the first two games and blanked him in the final game. At No. 7, Sarah C. Fay '15 held Stephanie Parent to zero points in both the first and third games and won the second, 11-3.

All of the matches were relatively low scoring; of each opponent that was faced, only one was able to score more than four points in a game, and that occurred at the No. 1 spot. Nikhil N. Punwaney '17 played three very close games, but walked away with the win by a score of 11-9, 11-7, 11-8. At No. 2, Tyler M. Finkelstein '17 had an 11-1, 11-2, 11-3 victory against Abe Etkin and, at No. 9, Aaron Zwiebach '16 easily earned a win against Morgan Evans, 11-1, 11-3, 11-3.

Tech will not play another match until Tuesday, Jan. 21, when it hosts Boston College at 7:00 p.m. MIT will then be on the road for two matches before returning home to host three more before nationals begin.

—Charlotte Brackett

Engineers defeat Lyons by 15 points

Framingham State game tonight

By Mindy Brauer
DAPER STAFF

Despite a second-half run that brought Mount Holyoke College within 10 points with just six minutes left to play, the MIT women's basketball team held on for a 47-32 NEWMAC victory on Saturday afternoon. Playing all 40 minutes, Mari R. Kordell '15 compiled 15 points, five rebounds, four assists, and four steals for the Engineers (4-3, 3-2 NEWMAC). Amber Legare led the Lyons (2-4, 1-4 NEWMAC) with a game-high 16 points to go along with seven rebounds and two steals.

On MIT's ensuing possession, a put-back by Drammis at the 8:30 mark sparked a 16-2 run that resulted in a 27-12 advantage at the intermission.

A three-point play by Sabrina M. Drammis '16 gave MIT a 7-3 lead after five minutes expired. Mount Holyoke responded with a Legare layup and a three-pointer from Kate Karraker to claim the one-point edge. Midway through the frame, jumpers by Drammis and Kordell put the hosts in front, 11-8; however, Legare's layup on the Lyons' next trip down the court kept them within striking distance. On MIT's ensuing possession, a put-back by Drammis at the 8:30 mark sparked a 16-2 run that resulted in a 27-12 advantage at the intermission.

The Engineers continued to cruise in the second half as their margin grew to 21 (36-15) courtesy of Kordell's fast-break layup following five minutes of action. Mount Holyoke slowly mounted a 16-5 run that narrowed the gap to 10 (41-31) on Nicole DeMarchena's layup with 6:24 remaining. During the stretch, Legare registered six points while the Lyons converted all eight of their free-throw attempts after going 1-of-7 from the charity stripe in the first half. Maya K. Ramachandran '16 helped thwart the comeback bid as she went 4-for-4 at the free-throw line on back-to-back MIT possessions as Drammis added a basket with 1:42 on the clock.

Drammis finished with 15 points, eight rebounds, and two assists while Ramachandran recorded 11 points and nine boards. Rachel A. Hunt '13 chipped in nine rebounds and three steals as Michelle Battipaglia '15 contributed five boards and two steals.

Karraker racked up seven points, four rebounds, three assists, and two steals for Mount Holyoke. DeMarchena notched a team-high eight rebounds in addition to two steals as Kathleen O'Connor '14 rounded out the squad with five boards.

Next up for MIT will be a home game tonight, Dec. 10 against Framingham State University. Mount Holyoke returns to action on Dec. 29 at the two-day San Juan Tournament in Puerto Rico.

UPCOMING HOME EVENTS

Tuesday, December 10

Women's Basketball vs. Framingham State University
7 p.m., Rockwell Cage

AKIMITSU HOGGE—THE TECH

Justin M. Pedley '16 shoots in MIT's men's basketball game against Salem State University on Thursday evening. The game was close to the last minute, with MIT ultimately winning 61-57.

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